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Fact Sheet for the Chairman,
Subcommittee on Energy and Power,
Committee on Energy and Commerce,
House of Representatives

February 1988

NUCLEAR WASTE

Information on the Reracking of the Diablo Canyon Spent Fuel Storage Pools

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Resources, Community, and
Economic Development Division

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February 8, 1988

The Honorable Philip R. Sharp
Chairman, Subcommittee on Energy
and Power
Committee on Energy and Commerce
House of Representatives

Dear Mr. Chairman:

As you requested in your March 24, 1987, letter and as agreed in subsequent meetings with your office, we are providing information on a proposal by the Pacific Gas and Electric Company to replace existing spent fuel storage racks at the Diablo Canyon nuclear power plant in California with a rack that permits the storage of more spent fuel. This process is referred to as "reracking."

As agreed, this report

-- discusses the technical and procedural issues involved in the Diablo Canyon reracking licensing proceeding and

-- provides a chronology of events surrounding the Diablo Canyon reracking proposal, the Nuclear Regulatory Commission (NRC) licensing process, and associated litigation.

On October 30, 1985, the Pacific Gas and Electric Company the utility that operates the Diablo Canyon plant, applied to NRC for an amendment to the plant's operating license that would permit increasing storage of spent fuel assemblies in its storage pools by almost 5 times. The increased capacity would be achieved by installing new racks that would store spent fuel assemblies more closely together.

In February 1986, three local groups--the Sierra Club (Santa Lucia Chapter), the San Luis Obispo Mothers For Peace, and Consumers Organized for Defense of Environmental Safety (CODES)--asked NRC to hold hearings on the proposed reracking. On May 30, 1986, prior to holding the requested hearings, NRC approved the license amendment. (The Atomic Energy Act and NRC's implementing regulations permit approval of license amendments before a hearing is held when no significant hazard is involved.) The parties (referred

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to as interveners) challenging the proposed reracking asked the Ninth Circuit Court of Appeals to review NRC's decision. In September 1986, the court ruled that NRC had violated its regulations in approving the amendment prior to holding hearings. An Atomic Safety and Licensing Board, established by NRC, subsequently held hearings on the proposed reracking in June 1987. These hearings addressed technical concerns raised by the interveners.

In summary, the board determined that the interveners' concerns were unfounded and that the Diablo Canyon reracking could proceed. NRC therefore reissued the amendments on October 20, 1987. However, the Sierra Club appealed this ruling to both NRC's Atomic Safety and Licensing Appeal Board and the Ninth Circuit Court of Appeals and requested a further delay of the reracking while the appeal was being decided. Both the appeal board and the court agreed to review NRC's decisions but denied the delay request. These decisions allowed PG&E to begin reracking the Diablo Canyon storage pools while the appeal proceeds. As of early January 1988, the appeal process had not been completed.

Section 1 of this fact sheet provides general background information relating to the Diablo Canyon plant, the Pacific Gas and Electric proposal to rerack the storage pools, and key events surrounding the licensing proceedings. Section 2 discusses the technical concerns surrounding the proposal that were addressed in the licensing hearings. For each concern, it also describes the positions of NRC staff and Pacific Gas and Electric and the ruling of NRC's Atomic Safety and Licensing Board. Section 3 discusses the concerns that were raised regarding NRC's implementation of its regulations in approving the Pacific Gas and Electric application. Appendix I is a chronology of key events relating to the proposed reracking. Appendix II lists the concerns raised by various groups regarding the reracking and indicates their disposition in the licensing proceedings.

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The primary objective of our review was to provide factual information on the events and issues surrounding the proposed reracking of the Diablo Canyon spent fuel storage pools. As agreed with the Chairman's office, we did not attempt to determine whether NRC's conclusions regarding the proposal's safety were valid.

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We obtained most of the information for this fact sheet from (1) technical reports prepared by Pacific Gas and Electric, NRC staff, and contractors for both organizations, (2) internal NRC memorandums, (3) technical and other correspondence from NRC staff, Pacific Gas and Electric representatives, and interveners in the proceedings, and (4) briefs and other legal documents filed during hearings before NRC's Atomic Safety and Licensing Board and Atomic Safety and Licensing Appeals Board, as well as the Ninth Circuit Court of Appeals.

We also reviewed a report prepared by the Brookhaven National Laboratory for NRC, entitled Severe Accidents in Spent Fuel Pools in Support of Generic Safety Issue 82 (NUREG/CR-4982, July 1987). Finally, we obtained information from officials of (1) NRC, (2) Pacific Gas and Electric, (3) the Sierra Club, and (4) Brookhaven National Laboratory. Our work was performed primarily between August and December 1987.

We did not obtain formal external comments on this fact sheet because we obtained our information primarily from public documents. However, we did obtain the views of representatives of the parties involved in the Diablo Canyon reracking proceedings during the course of our review.

We are sending copies of this fact sheet to NRC's Chairman, Pacific Gas and Electric, the Sierra Club, and other interested parties. We will make copies available to others upon request. If you have further questions regarding this fact sheet, please contact me at (202) 275-1441.

Major contributors to this fact sheet are listed in appendix III.

Sincerely yours,

Keith O. Fultz

Keith O. Fultz
Associate Director

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ABBREVIATIONS

ASLB	Atomic Safety and Licensing Board
CODES	Consumers Organized for the Defense of Environmental Safety
EIS	environmental impact statement
GAO	General Accounting Office
NEPA	National Environmental Policy Act
NRC	Nuclear Regulatory Commission
PG&E	Pacific Gas and Electric Company
PHE	Postulated Hosgri Earthquake

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SECTION 1

THE DIABLO CANYON RERACKING PROPOSAL

AND LICENSING PROCEEDINGS

NUCLEAR REACTORS AND SPENT FUEL STORAGE

Nuclear power plants use uranium as fuel to produce electricity. The uranium is fabricated into pellets and inserted into fuel rods. These rods are then bundled together to form fuel assemblies, which are placed in reactors. As energy contained in the uranium fuel is consumed, electricity is produced by the reactor. Approximately every 12 to 18 months, about one-third of the fuel in most reactors has to be replaced with fresh uranium fuel. When most of the uranium has been consumed, the remaining material--called spent fuel--is removed from the reactor and stored underwater in a large pool at the reactor site. Almost all spent fuel from commercial nuclear power reactors remains in storage at each reactor location.

In recent years, a number of utilities have faced a shortage of storage space in their reactors' spent fuel pools, because, as originally licensed, the pools at most reactors were designed to store only relatively small amounts of spent fuel. It was assumed that spent fuel would be stored onsite for only a short period and then shipped to a federal storage and/or disposal facility. When the Nuclear Waste Policy Act of 1982 assigned utilities primary responsibility for spent fuel storage until the federal government is prepared to accept it, storage facilities at a number of reactors had to be expanded. To alleviate this problem, some utilities have "reracked" their spent fuel pools; that is, they have replaced existing storage racks with "high-density" racks that would store spent fuel assemblies closer together, thereby allowing more spent fuel to be stored in the pools.

Before a nuclear power plant can begin operating, the utility company that owns the plant must first obtain a construction permit and then an operating license from the Nuclear Regulatory Commission (NRC). The utility company must provide NRC with technical evidence for reasonable assurance that construction and operation of the nuclear plant will not harm the environment or cause safety risks to the surrounding population. Once NRC reviews this information and determines that the plant can be properly constructed and safely operated, it issues the plant's construction permit and operating license. Any significant changes in the equipment or operations of the plant--including reracking--after the operating license has been issued must also be approved by NRC. NRC's approval of such changes is granted by means of an amendment to the original operating license.

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DIABLO CANYON NUCLEAR POWER PLANT

The Diablo Canyon nuclear power plant, located on the Pacific Ocean 12 miles southwest of San Luis Obispo, California, has two reactors. Unit 1, which began commercial operation in May 1985, is capable of generating up to 1,084 megawatts of electrical energy. Unit 2, which began operation in March 1986, can generate up to 1,106 megawatts of electricity.

On October 30, 1985, the Pacific Gas and Electric Company (PG&E), the utility that operates Diablo Canyon, submitted an application to NRC to amend the plant's operating license. Originally, low-density storage racks were installed at Diablo Canyon to accommodate spent fuel discharged from one refueling of the reactor (approximately 70 assemblies), plus additional capacity equivalent to a full reactor core (193 assemblies) in the event a full core discharge was necessary. The license amendment would permit the storage of 1,324 spent fuel assemblies in each of the plant's two spent fuel storage pools rather than the 270 assemblies authorized under the original operating license. The increased storage capacity would result from the replacement of existing storage racks in each pool with high-density racks that would permit spent fuel assemblies to be stored more closely together. This closer spacing of assemblies would result in a more efficient use of pool space and, therefore, more assemblies could be stored in each pool. (Appendix I is a chronology of key events surrounding the reracking proposal.)

Under the proposed license amendment, 16 spent fuel storage racks of varying sizes would be placed in each of the two storage pools at the Diablo Canyon site. Each rack is a large, rectangular, stainless steel canister approximately 17 feet high weighing 15,000 to 28,000 pounds. Each rack contains cells for storing 24 to 110 spent fuel assemblies. The racks are designed to sit "free-standing" (unanchored) on the bottom of the water-filled storage pools. They have no structural elements to attach them to the pool floor or walls or to another rack. They are, however, built with exterior steel bars that absorb impacts if the racks move during an earthquake and serve to maintain an appropriate distance between racks. The racks are surrounded by, and filled with, water.

On January 13, 1986, after reviewing technical information supporting the proposed reracking of the Diablo Canyon pools, NRC issued public notice that it was considering the amendment and providing an opportunity for public hearings on the issue. In February 1986, three groups--the San Luis Obispo Mothers For Peace, the Sierra Club (Santa Lucia Chapter), and Consumers Organized for Defense of Environmental Safety (CODES)--asked NRC to hold hearings on the proposed reracking and intervened in the licensing process. In conformance with NRC regulations, an Atomic Safety and Licensing Board (ASLB) was established to hold hearings and preside over the

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proceeding. NRC approved the license amendment on May 30, 1986, prior to holding hearings on the proposal. The Atomic Energy Act and implementing NRC regulations permit approval of license amendments prior to requested hearings if NRC staff first makes a determination that the amendment involves no significant hazards considerations. NRC staff made such a determination regarding the Diablo Canyon reracking and, thus, issued the amendment, effective immediately. In June 1986, however, the parties challenging the reracking--called interveners--requested that the reracking be delayed, pending a hearing. NRC and ASLB denied this request. Two of the interveners, therefore, requested that the Ninth Circuit Court of Appeals delay the Diablo Canyon reracking. On September 11, 1986, the court ruled that, while PG&E could continue reracking the Diablo Canyon Unit 1 pool (which was already in progress), it could not place any spent fuel in that pool or begin reracking Unit 2 until NRC held hearings on the proposed amendment.

In December 1986 and January 1987, respectively, CODES and the San Luis Obispo Mothers For Peace withdrew as interveners prior to the hearings. In June 1987, ASLB held hearings on the proposed reracking addressing a list of contentions or concerns raised by the Sierra Club. ASLB determined in September 1987 that the Sierra Club's concerns were unfounded and that NRC could issue the license amendment to rerack the Diablo Canyon storage pools. NRC reissued the amendment on October 20, 1987. The Sierra Club then asked the Atomic Safety and Licensing Appeal Board and the Ninth Circuit Court of Appeals to review ASLB's September 1987 rulings, and to delay the reracking pending their review. Both the Appeal Board and the Circuit Court agreed to review ASLB's rulings but denied the delay request. These decisions allowed PG&E to begin reracking the Diablo Canyon storage pools while the appeal proceeds. As of early January 1988, the appeal process had not been completed.

CONSEQUENCES OF RERACKING DELAYS

Initially, PG&E proposed to rerack the Diablo Canyon storage pools before any spent fuel had been placed in them. At that time, the pools were still dry, empty, and uncontaminated. These conditions would make reracking a relatively simple process. After NRC approved the reracking in May 1986, PG&E began removing the existing racks and replacing them with high-density racks, as planned. The reracking process was interrupted, however, by the court's orders which temporarily delayed use of the high-density racks and then prohibited their use until after NRC held hearings. While the licensing proceedings were continuing, PG&E needed to refuel the Diablo Canyon Unit 1 reactor. PG&E, therefore, either had to shutdown its reactor because it had no place to store the spent fuel removed in refueling, or reinstall the original racks, fill the pool, and place the radioactive spent fuel in storage. PG&E chose to reinstall the original racks and refuel the reactor.

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PG&E began reracking the Diablo Canyon spent fuel storage pools in November 1987. Since the pool now holds spent fuel, the reracking involves a different, more complicated procedure than that originally approved by NRC; reracking is now taking place underwater, requiring the handling and removal of highly radioactive spent fuel using special equipment. This process is expected to be completed by the end of January 1988.

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SECTION 2

TECHNICAL CONCERNS RELATING TO THE PROPOSED DIABLO CANYON RERACKING

In April 1986, the three interveners submitted a list of several concerns or contentions to ASLB opposing the proposed spent fuel pool reracking. (Appendix II contains a complete list of the contentions originally submitted by the interveners and indicates their disposition.) In June 1986, ASLB determined that a number of these contentions could not be admitted to the licensing hearing because they did not meet the criteria established under NRC regulations.[1] Prior to the June 1987 hearings, the San Luis Obispo Mothers For Peace and CODES withdrew from the proceeding, and their contentions were dismissed by ASLB. Therefore, only the Sierra Club's contentions were addressed in the June 1987 hearings.

At the opening of the hearings, the Sierra Club attempted to introduce an additional contention concerning the consequences of a possible loss of coolant (water) from the spent fuel storage pools at Diablo Canyon. At the same time, the Sierra Club asked ASLB to direct NRC staff to prepare an environmental impact statement on the proposed reracking. After reviewing arguments from all parties, ASLB concluded that the new Sierra Club contention could not be admitted into the proceedings because the issues raised were not directly applicable to the Diablo Canyon reracking proposal.

During the hearings, both NRC staff and PG&E presented expert witnesses who addressed each of the Sierra Club's contentions. Each witness was either an NRC or PG&E employee or consultant. These witnesses were qualified in such areas as structural, nuclear, civil, and reactor operations engineering. The Sierra Club provided one witness to present and defend its contentions. ASLB found, however, that the Sierra Club's witness was not an expert in the key technical areas relating to the design and analysis of spent fuel racks, such as nuclear engineering, nuclear

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[1]Section 2.714 of Title 10 of the Code of Federal Regulations contains the requirements for admission of contentions to licensing hearings. Among other things, section 2.714 requires interveners to state "the bases for each contention set forth with reasonable specificity." This means that the contention must establish that it applies to the facility at issue and warrants further examination. Most of the contentions denied admission to the proceeding were rejected because they lacked the necessary specificity and failed to demonstrate a direct connection with issues involved in the Diablo Canyon reracking.

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systems, nuclear criticality,[2] seismic design, and relevant federal laws, codes, and regulations. According to ASLB, other than the involvement with the proposed Diablo Canyon reracking, the Sierra Club's witness had "limited or no experience with any of the technical subjects at issue in this proceeding."

After hearing the arguments of Sierra Club, NRC, and PG&E witnesses, and reviewing their supporting documentation, ASLB concluded in September 1987 that the proposed reracking of the Diablo Canyon spent fuel pools with high-density, free-standing racks will adequately protect the public health and safety and the environment. Further, ASLB concluded that PG&E's license amendment application meets or exceeds NRC regulations and related technical requirements. Therefore, ASLB declared that the contentions of the Sierra Club were "unfounded" and that NRC could issue the reracking license amendment. As noted previously, however, the Sierra Club's appeal of this ruling is pending before the Atomic Safety and Licensing Appeals Board.

CONCERNS ADDRESSED IN ASLB HEARINGS

The Sierra Club originally submitted four major contentions for consideration by ASLB, each containing several subparts. Some of these contentions were rejected--either completely or in part--by ASLB in June 1986, portions of some contentions were settled between the parties before ASLB hearings were held, and the remaining contentions were admitted and discussed in the proceedings in June 1987.[3] Because the other interveners withdrew from the proceedings before ASLB hearings began, only the Sierra Club's admitted contentions were addressed in those hearings.

Each of the contentions considered by ASLB in the June 1987 hearings is described and discussed below. The positions of NRC staff and PG&E on each contention are also summarized. In addition, the findings and conclusions of ASLB are presented.

Sierra Club Contention I(A)

The Sierra Club's first major concern (see Contention I(A) in appendix II) stated that the Diablo Canyon reracking license amendment application and other documentation do not contain sufficient data on six specific technical subjects. After the

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[2]Nuclear criticality refers to conditions under which a nuclear chain reaction will occur.

[3]Sierra Club Contentions I(B)1, 3, 4, 5, 6, and 10; III; and IV were rejected by the ASLB in June 1986. Contentions I(A)1, 2, 5, and 6 were settled between the parties before consideration by the ASLB. Only Sierra Club Contentions I(A)3 and 4; I(B)2, 7, 8, and 9; and II were admitted and discussed in the proceedings in June 1987.

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contention was submitted, PG&E provided additional information to the Sierra Club on these subjects. The Sierra Club reported to ASLB on August 15, 1986, that this information resolved four of the six areas of concern (Contention I(A)1, 2, 5, and 6 in appendix II), leaving only two still in dispute (I(A)3 and 4). The two remaining areas under dispute concerned the alleged lack of data on the expected velocity and displacement (change in position) of the spent fuel pools and the racks during an earthquake.

Both NRC staff and PG&E agreed with the Sierra Club's contention that the report supporting the license amendment application did not state individual values of velocity and displacement for the fuel pools and storage racks during the Postulated Hosgri Earthquake.[4] However, they argued that it is not necessary to show these values separately because the method of analysis used in designing the pools does not use these velocity and displacement values, but does make it possible to derive them if needed. The individual values for these phenomena were therefore omitted from the reracking report because they were considered unnecessary.

On the basis of the arguments and evidence presented, ASLB found that PG&E is not required to state velocity and displacement values separately, as the Sierra Club suggested. ASLB concluded that PG&E had submitted sufficient information and data in support of its license amendment application to verify that the reracking is consistent with the protection of the public health and safety, including data on the expected velocity and displacement of the spent fuel pools and the racks during the Postulated Hosgri Earthquake. Contention I(A), therefore, was denied.

Sierra Club Contention I(B)

The Sierra Club's second major concern originally consisted of 10 subparts (see Contention I(B) in appendix II). Of these, ASLB found that three subparts (I(B)1, 5, and 10) are covered under another contention (Contention II) and would be considered with that contention. Three other subparts (I(B)3, 4, and 6) were rejected earlier by ASLB as not meeting the requirements of NRC regulations. One contention (I(B)9) was withdrawn by the Sierra Club during the hearing. Therefore, of the original 10 subparts of Contention I(B), only three subparts (I(B)2, 7, and 8) were considered during the licensing proceeding before ASLB.

In Contention I(B)2, the Sierra Club stated that PG&E's reracking report did not consider resonant behavior (vibrational

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[4]The Postulated Hosgri Earthquake is the maximum earthquake that can be expected at the Diablo Canyon plant; it sets the outer limit for seismic forces that certain plant structures must be able to withstand.

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effects) of the fuel assemblies in the racks during the Postulated Hosgri Earthquake. Although PG&E did not specifically address this phenomena in its report, NRC staff and PG&E argued that PG&E's analysis would have detected any such resonance effects if they existed. NRC's experts testified that PG&E's analysis was appropriate and that they do not expect any resonance effects on the spent fuel assemblies in the event of an earthquake.

ASLB found that the rack analysis performed by PG&E considered potential resonant behavior of fuel assemblies. PG&E's design basis analysis demonstrated that, because of the specific conditions present, the fuel assemblies would not significantly vibrate. These conditions include the presence of water surrounding the assemblies, the movement of the fuel assemblies within the fuel racks, and friction at the fuel rack base. ASLB found that the analysis appropriately represented these physical conditions and demonstrated that the integrity of the racks would be maintained. ASLB concluded that the analysis would have detected any existing resonance effects. ASLB, therefore, found that the contention had no merit, and it was denied.

In Contention I(B)7, the Sierra Club maintained that PG&E's reracking report should have considered alternative methods of onsite spent fuel storage, including use of new pools or dry storage casks. Both NRC staff and PG&E argued that NRC does not require consideration of alternative storage methods in a request for reracking approval. Further, according to PG&E representatives, they analyzed and compared various options to increase storage capacity before deciding to use high-density storage racks. On the basis of that analysis, PG&E concluded that neither of the two alternatives noted by the Sierra Club had any safety advantages over reracking. In fact, they concluded that these alternatives may involve some safety concerns, such as increased fuel handling. In addition, PG&E concluded that the time frame in which new pools would be needed, the lack of suitable sites for their location at Diablo Canyon, and their projected expense argued against construction of new onsite storage facilities.

NRC staff agreed with PG&E's position and stated that the proposed reracking would have no significant environmental impacts. They also found that the alternatives suggested by the Sierra Club--new or additional storage facilities or use of modular or mobile fuel storage casks--would have specific, although not significant, environmental impacts. Finally, according to NRC staff, reracking the pools has clear financial advantages over the suggested alternatives.

After considering the arguments of all parties, ASLB found that the Sierra Club presented no concrete evidence that PG&E had failed to consider adequately the alternatives for onsite storage. ASLB found that the comparisons of alternative storage options

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included in PG&E's reracking report comply fully with NRC regulations, and, thus, the contention was denied.

In Contention I(B)8, the Sierra Club stated that PG&E did not consider using structural components, such as anchors or braces, to prevent rack motion and possible damage during the Postulated Hosgri Earthquake. Both NRC staff and PG&E argue that the design of the free-standing, high-density racks meets NRC criteria and guidance for spent fuel storage racks and that anchors, braces, or other structural components are not needed. They also noted that free-standing racks have several advantages over anchored or braced racks. For example, free-standing racks reduce the stress on the pool liner from the heat generated by the spent fuel. In addition, a free-standing rack is considered a better design for absorbing energy generated during an earthquake.

ASLB agreed with NRC staff and PG&E and found that structural anchors, braces, or other structural components are not necessary to prevent rack motion and potential rack damage. ASLB agreed that the free-standing racks satisfy NRC criteria and guidance for spent fuel storage racks. ASLB concluded that the racks proposed for use at Diablo Canyon would accommodate the rack motion that would occur during the Postulated Hosgri Earthquake and that the racks have sufficient safety margins. In general, ASLB concluded that PG&E submitted sufficient information and data on relevant conditions, phenomena, and alternatives to demonstrate that the proposed reracking will adequately protect the public health and safety. Therefore, ASLB denied this contention.

Sierra Club Contention II

The Sierra Club's second major contention included two parts (see appendix II). The first part of the contention stated that collisions between the racks and the pool walls during an earthquake would cause damage to the racks and spent fuel assemblies, resulting in radioactive contamination of the Diablo Canyon plant and the environment. The second part stated that similar damage and contamination would result from collisions of groups of racks with each other and with the pool walls.

In the first part of this contention, the Sierra Club questioned whether the free-standing, high-density spent fuel storage racks proposed for use at Diablo Canyon are designed to withstand seismic forces that would occur during an earthquake. The Sierra Club stated that NRC regulations and guidance do not allow sliding and tilting of the storage racks during earthquakes, therefore prohibiting impacts of a rack with other racks and with the pool walls. Further, according to the Sierra Club, the analytical and modeling procedures used by PG&E to derive the impact forces, loads, and stresses on the racks resulting from an earthquake were not conservative, were based on inadequately demonstrated theory or practice, and were inadequately performed.

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Because the occurrences discussed in the remaining parts of Contention II would result only from serious damage and deformity of the racks during the Postulated Hosgri Earthquake, ASLB considered the first three parts of the contention to be the crucial portion of the Sierra Club's arguments.

In response to the Sierra Club's allegations, PG&E stated that its design procedures fully meet NRC seismic design requirements and guidance.[5] PG&E maintained that NRC criteria permit rack sliding and rack-to-rack and rack-to-wall impacts and provide specific guidance on how such impacts are to be incorporated into the rack design. NRC staff stated that such sliding, tilting, and impacts are permitted, providing the impact effects are quantified and that sliding and tilting motions are contained within acceptable limits.

ASLB agreed with PG&E and NRC staff and found that boundaries between racks and between racks and pool walls limit rack movement and prevent the racks from overturning. ASLB also found that the Diablo Canyon high-density racks comply with the applicable seismic design criteria set out in NRC regulations and guidance: PG&E's calculations of the potential seismic loads (earthquake forces) on the high-density racks were performed in accordance with the criteria specified in NRC Staff's Position Paper and Section 3.8.4, Appendix D, of NRC's Standard Review Plan. The stresses in the racks were determined to be lower than the allowable stress values permitted by the acceptance criteria. These allowable values provide a sufficient safety factor, according to ASLB.[6] ASLB found that the racks were designed and constructed using the approved acceptance criteria to maintain the spent fuel assemblies in a safe configuration in conditions which may occur during an earthquake, including potential impacts between the racks and between the racks and the fuel pool walls.

ASLB found that PG&E performed several additional technical studies that confirmed in all cases that rack impact loads and stresses due to the Postulated Hosgri Earthquake are below allowable values. The impact forces that the racks are capable of withstanding are shown to be greater than all potential collision

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[5]NRC seismic design requirements and guidance are contained in NRC's Standard Review Plan (Sections 9.1.2 and 3.8.4 of Appendix D) and in the NRC Office Technical (OT) Position Paper, "OT Position for Review and Acceptance of Spent Fuel Storage and Handling Applications," dated April 14, 1978.

[6]According to PG&E's calculations, the largest calculated impact force between a storage cell and a fuel assembly is 249,000 pounds, or 28 percent of the allowable 883,000 pounds, and the maximum calculated impact force between racks is 105,000 pounds, which is 60 percent of the allowable 175,000 pounds.

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conditions under the postulated earthquake. ASLB concluded that the evidence supplied by PG&E provides reasonable assurance that the racks are designed to safely withstand the potential effects of multiple rack impacts with each other and with the pool walls.

According to ASLB, the Postulated Hosgri Earthquake will not result in significant, permanent deformity or other damage to the racks and pool walls. While minor deformity of the racks or the pool walls might occur during the Postulated Hosgri Earthquake, there would be no damage that would lead to a nuclear reaction, damage to the fuel, increases in heat generation, or radiation releases. Consequently, no radioactive contamination of humans and other living things in the vicinity of the plant above the levels permitted by federal regulations would result from collision between the racks or the racks and the pool walls during the postulated earthquake.

ASLB concluded that the proposed reracking would adequately protect the public health and safety and the environment, and neither the postulated collisions between the racks and the pool walls nor the postulated collisions between groups of racks with each other or the pool walls have been shown to result in the harmful consequences alleged in the contention.

Because ASLB found that the design of the proposed high-density racks meets applicable NRC requirements and that the racks and pool walls will withstand the effects of the Postulated Hosgri Earthquake without becoming significantly and permanently deformed or damaged, ASLB found that the first three parts (II(A)1, 2, and 3) of the Sierra Club contention were without merit and were denied. Because the effects alleged in the remaining parts of this contention (II(A) 4 through 9) would result only from significant permanent deformity and damage of the racks and pool walls during an earthquake--an assertion ASLB found to be unwarranted--these subparts were also denied.

SIERRA CLUB ATTEMPTS TO ADMIT AN ADDITIONAL CONTENTION

On June 16, 1987, the Sierra Club asked ASLB to admit a new contention relating to the Diablo Canyon reracking. This contention stated that

> "The proposed action significantly increases the consequences of loss of cooling accidents in that a loss of water in the spent fuel pools could lead to spontaneous ignition of zircalloy [sic] cladding[7] of the fuel elements in the high-density configuration with significant releases of radiation."

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[7]Zircaloy cladding refers to the metallic alloy rods in which the uranium fuel pellets are encased.

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At the same time the Sierra Club asked ASLB to direct NRC staff to prepare "an Environmental Impact Statement concerning the possibility of and the impact of Zircalloy [sic] cladding fires at the Diablo Canyon facility."

The basis for the Sierra Club's contention was a January 1987 draft report by the Brookhaven National Laboratory[8] which addresses spent fuel pool accidents. The Sierra Club argued that the report concludes that a significant preventive measure to reduce risk of a cladding fire in spent fuel storage pools would be to use low-density storage racks rather than the high-density racks proposed for installation at Diablo Canyon. The Sierra Club stated that in an appendix to the report, two of the report's authors specifically recommend that spent fuel not be stored in a high-density configuration as proposed at the Diablo Canyon plant. The Sierra Club argued that the potential for fuel cladding fires as noted in the Brookhaven report had not been addressed in the Diablo Canyon proceeding.

The Sierra Club argued on a procedural basis that the proposed additional contention related directly to contentions already admitted to the proceeding, and that if it had been aware of the contents of the report at the time that the original contentions were submitted, the Sierra Club would have introduced this contention at that time.

The Brookhaven Report

The objective of the Brookhaven report was to assess the potential risk from possible accidents in spent fuel storage pools. It provided an assessment of the likelihood and consequences of a severe accident in a storage pool, in particular, the complete draining of the pool. The possible events which could cause such an accident that were studied in the assessment included, among others, structural failure of the pool due to earthquakes. The study evaluated the possible consequences of a complete loss of pool water, such as the rupture or burning of spent fuel rod cladding. The report concluded that if all the water drained from the pool then (1) the natural air flow permitted by high-density storage racks is so restricted that, even if the fuel has been cooled for a year, potential for self-sustaining cladding fire exists; and (2) with high-density racks providing "severely restricted air flow," the oxidation (burning) would be "very vigorous" and "failure of both the fuel rods and the fuel rod racks

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[8]"Beyond Design Basis Accidents in Spent Fuel Pools (Generic Issue 82)," Draft, Brookhaven National Laboratory, January 1987. The final report, Severe Accidents in Spent Fuel Pools in Support of Generic Safety Issue 82, NUREG/CR-4982, July 1987, does not differ significantly from the draft report.

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is expected." The report stated that, since high-density racks are predicted to cause self-sustaining cladding fires even after storage for one or more years, "it seems clear that it would be undesirable to store spent fuel in high-density storage racks if it has been discharged in the last two years."

The results of the study were based on modeling using two older reactors located in the eastern United States. In general, the study concluded that "the risk estimates are quite uncertain and could potentially (under worst case assumptions) be significant." The report stated, however, that it is not clear that these results are directly applicable to other nuclear plants "because the plants selected for detailed study were chosen specifically for their perceived vulnerability to seismic events." Further, it stated that "in order to determine whether other plants have a significant risk profile, a plant-specific evaluation would be required."

PG&E and NRC Staff Positions and Conclusions of ASLB

PG&E opposed admitting the new contention to the hearings. PG&E stated that the proposed contention did not raise a significant safety issue because: (1) the contention was based on a draft generic report not directly related to the Diablo Canyon plant and (2) the Sierra Club has not shown the necessary connection between that report and the Diablo Canyon spent fuel pools. Further, PG&E argued that the contention was filed late and did not satisfy the requirements for a late filed contention set out in NRC regulations.[9] In addition, according to PG&E, a precedent established in a recent court case involving the Vermont Yankee Nuclear Power Corporation prevents admission of the Sierra Club contention, because, as in that case, the contention assumed an accident scenario that is beyond design-basis (that is, beyond those occurrences which the facility was designed to withstand). PG&E argued that, because such accidents are remote and speculative events, the National Environmental Policy Act of 1969 does not require NRC to consider them or prepare an environmental impact statement, as the Sierra Club alleged.

NRC staff also opposed admission of the contention. NRC staff argued that the contention was not related to any issue in the

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[9]Contentions are normally filed early in the proceeding unless they are based on newly discovered evidence. A contention which is not filed at the beginning of the proceeding is referred to as a "late filed contention." Whether a late contention is admitted to the proceedings depends on a number of factors including whether (1) there is a good reason for an intervener's failure to file on time, (2) there are other means to protect the intervener's interests, and (3) the proceeding will be broadened or delayed.

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Diablo Canyon proceeding and, therefore, was not related to any other admitted contention. None of the admitted contentions addressed spent fuel pool failure and this contention went far beyond any environmental issues in the proceeding, according to NRC staff. Further, NRC staff argued that the contention was filed late and did not meet the criteria for admission to the proceeding. NRC staff also agreed with PG&E that the contention should not be admitted because (1) the Brookhaven report is not directly applicable to the Diablo Canyon plant, and the Sierra Club demonstrated no connection between the report and the plant and (2) the Vermont Yankee case prohibits the contention from being admitted to the Diablo Canyon proceeding.

ASLB found that, despite the surface appearance of a relationship between the Brookhaven report and the Diablo Canyon spent fuel pools, the contention failed to make a connection between the report and the issues being considered in the proceeding. ASLB found that the Sierra Club provided no comparisons or data to show any similarities between the reactor used as a model in the Brookhaven report and the Diablo Canyon reactor--particularly their spent fuel pools--other than that they are both pressurized water reactors. The Sierra Club did not show any link between the generic conclusions drawn in the report from a theoretical computer model based on an older, smaller reactor and the reracking proposed for Diablo Canyon. ASLB pointed out that the report warns throughout against drawing specific conclusions regarding individual reactors.

According to ASLB, the Sierra Club's contention assumed a total loss of coolant in the Diablo Canyon spent fuel pools leading to a spent fuel rod cladding fire and its consequences without specifying any mechanism that could cause such an event. ASLB stated that, without some scenario describing how the cooling loss might occur, "there is no basis for the Board to assume that it will [occur] and thus no grounds for admitting any such contention."

In summary, ASLB concluded that the Sierra Club's contention could not be admitted to the proceeding, given (1) the caveats set out in the Brookhaven report, (2) the very broad-based recommendations and conclusions in the report, (3) the lack of any evidence or reasoning to connect a generic report with the specific conditions at Diablo Canyon, (4) the absence of any discussion of an event that might initiate an accident that would result in a loss of coolant, and (5) no direct relationship between the proposed contention and any other contentions already admitted to the proceeding.

ASLB also concluded that the contention was based on a "hypothesized event" that would be beyond the design-basis of the plant. In accordance with the Vermont Yankee decision--and in agreement with the NRC and PG&E positions--ASLB found that NRC was

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not required to prepare an environmental impact statement. In rejecting the Sierra Club's contention, ASLB quoted the ruling of the Atomic Safety and Licensing Appeals Board in that case, which stated that "there must be some basis for requiring an EIS [Environmental Impact Statement] other than a claim of increased risk from a beyond design-basis accident scenario."

The Sierra Club appealed the rejection of the contention to the Atomic Safety and Licensing Appeals Board. The appeals board agreed with ASLB's ruling, but said that this decision could be appealed later if the Sierra Club also appealed ASLB's September 11, 1987, approval of the reracking amendments. On September 24, 1987, the Sierra Club appealed both ASLB decisions. As of January 1988, these appeals are pending before the appeals board.

REMAINING TECHNICAL CONTENTION

According to the Conservation Chairman of the Santa Lucia Chapter, the Sierra Club is generally satisfied that most of its concerns relating to technical aspects of the Diablo Canyon reracking have been aired and addressed through the NRC licensing process. This official said that, while the Sierra Club believes that its concerns have been addressed, it is not completely satisfied with the resolution of those concerns. The Sierra Club remains concerned about the safety of high-density storage racks at Diablo Canyon.

This Sierra Club official stated that the one technical issue that the Sierra Club believes has not been adequately addressed is the possibility of a serious accident and risk to the environment from an earthquake involving high-density racks at Diablo Canyon. On the basis of the results of the Brookhaven report, the Sierra Club is not satisfied that the potential consequences of an earthquake at Diablo Canyon have been adequately addressed by either PG&E or NRC staff. The Sierra Club believes that the report raises enough questions about the safety of using high-density racks where an earthquake is possible that its conclusions should be reviewed and discussed in relation to the specific circumstances of the Diablo Canyon reracking proposal.

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SECTION 3

PROCEDURAL ISSUES RELATING TO THE DIABLO CANYON RERACKING PROPOSAL

In January 1986, NRC issued public notice that it was considering PG&E's proposed reracking amendment and that it was providing an opportunity for public hearings on the issue. In February 1986, three local groups asked NRC to hold hearings on the proposed reracking. In conformance with NRC regulations, an Atomic Safety and Licensing Board was established to hold hearings. NRC approved the license amendment on May 30, 1986, and, as permitted by its procedural regulations, made it effective immediately, before ASLB held a hearing. In June 1986, however, two interveners--the Sierra Club and San Luis Obispo Mothers For Peace--requested that the reracking be delayed, pending a hearing. NRC and ASLB denied this request, stating that their approval of the amendment prior to hearings was in compliance with NRC regulations.

After failing to obtain a delay from NRC and ASLB, the interveners requested that the Ninth Circuit Court of Appeals delay the Diablo Canyon reracking. On September 11, 1986, the court ruled that (1) NRC had violated its own regulations in approving the license application prior to holding hearings and (2) although PG&E could continue reracking the Diablo Canyon Unit 1 pool, it could not place any spent fuel in that pool or begin reracking Unit 2 until NRC held hearings on the proposed amendment.

REQUIREMENTS FOR APPROVAL OF LICENSE AMENDMENTS

The Atomic Energy Act established the requirements for NRC approval of license amendments. Section 189a of the act states that "in any proceeding . . . for the granting, suspending, revoking, or amending of any license . . ., the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding." The hearing is to be held after 30 days notice and publication in the Federal Register. However, a 1982 amendment to the Atomic Energy Act--referred to as the Sholly Amendment--states that

> "The Commission may issue and make immediately effective any amendment to an operating license, upon a determination by the Commission that such amendment involves no significant hazards consideration, notwithstanding the pendency before the Commission of a request for a hearing from any person. Such amendment may be issued and made immediately effective in advance of the holding and completion of any required hearing."

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Under regulations established pursuant to the Sholly Amendment (10 CFR 50.92), NRC may make a license amendment immediately effective if the amendment does not

-- involve a significant increase in the probability or consequences of an accident previously evaluated, or

-- create the possibility of a new or different kind of accident from any accident previously evaluated, or

-- involve a significant reduction in a margin of safety.

With these regulations as guidelines and on the basis of a technical evaluation of the activity's safety, NRC made a determination that the Diablo Canyon reracking amendment did not involve a significant hazards consideration. Therefore, after making that determination, NRC, in accordance with the Sholly Amendment, established a board to conduct hearings at a later date and then approved the Diablo Canyon reracking, effective immediately.

OPINION OF THE NINTH CIRCUIT COURT OF APPEALS

The Ninth Circuit Court of Appeals found that NRC did evaluate the reracking amendment against the established criteria for making a "no significant hazards" determination. The three-member court ruled, however, that NRC's analysis of the amendment using the second criterion--whether the reracking would create the possibility of a new or different kind of accident--was contradictory and "in direct contravention of Congressional intent in enacting the Sholly amendment."

In its opinion, the court observed that NRC's regulations require a hearing before a proposed license amendment becomes effective whenever the amendment creates the possibility of a new or different kind of accident. According to the court, the interveners identified such an accident, and they should have been granted a hearing prior to issuance of the amendment. The court said that the change from racks bolted to the floor of the pools to free-standing racks creates the possibility that, in the event of an earthquake, the racks will collide with the walls of the pools or with each other, enhancing the risk that a nuclear reaction will occur in the pools. Diablo Canyon is located in an active seismic zone, and the original licenses did not analyze the effect of an earthquake on the new high-density rack design. According to the court, the license amendments would, therefore, seem to create the possibility of a new or different kind of accident. On the basis of these findings, the court concluded that NRC failed to comply with its own regulations in denying petitioners a hearing prior to making the Diablo Canyon reracking license amendment effective. One judge dissented on the basis that when the Congress delegated to NRC the power to make "no significant hazards" determinations,

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"it did not mean that the courts rather than the NRC should determine what is a significant hazard."

SIERRA CLUB'S REMAINING PROCEDURAL CONCERNS

The Conservation Chairman of the Sierra Club, Santa Lucia Chapter, told us that the Sierra Club is still concerned about how the Diablo Canyon licensing process was implemented. He said that the timing of NRC's release of documents relevant to the reracking proposal effectively prevented the Sierra Club from participating actively in the licensing process.

PG&E filed its application to rerack the Diablo Canyon pools on September 19, 1985. Then, on January 13, 1986, NRC published in the Federal Register a notice that it was considering issuance of the reracking amendment and proposed a "No Significant Hazards" determination for the amendment. At that time, the Sierra Club requested a hearing and filed several contentions. A pre-hearing conference to discuss whether the contentions were admissible was held on May 13, 1986. On May 21, 1986, as required by the National Environmental Policy Act (NEPA), NRC released an environmental assessment relating to the proposed reracking and its finding that the reracking would have no significant impact on the environment. On the basis of these findings, NRC issued the reracking amendments on May 30, 1986.

According to this Sierra Club official, the public has its first opportunity to intervene in the licensing process when NRC's notice of proposed finding of no significant hazards is published--in this case, in January 1986. However, according to this official, little documentation or analysis was available to the public at that time to allow them to participate actively in the process on an informed basis because the environmental assessment had not yet been issued. Under these circumstances, the interveners' contentions had to be developed based on very little knowledge. The Sierra Club maintains that the timing of NRC's issuance of its documents under NEPA resulted in the Sierra Club being forced to submit all "timely" contentions before the environmental assessment was issued. It is the Sierra Club's contention that the process employed is not an appropriate implementation of the NEPA process since no documents were available at the time when interveners were to begin their participation and, therefore, they did not have sufficient information to participate actively and fairly in the proceeding.

NRC has maintained throughout the licensing proceedings that its actions with regard to the Diablo Canyon reracking amendments are fully consistent with the NEPA requirements.

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CHRONOLOGY OF PRINCIPAL EVENTS RELATING TO DIABLO CANYON

SPENT FUEL POOL RERACKING

September 19, 1985 - Pacific Gas and Electric Company (PG&E) submits documentation to the Nuclear Regulatory Commission (NRC) supporting proposed application to amend operating license of Diablo Canyon Units 1 and 2. The amendment would allow storage of a larger amount of spent fuel at the reactor site by replacing existing storage racks with high-density racks that would store spent fuel assemblies in a more compact array.

October 30, 1985 - PG&E submits License Amendment Request #85-13 to NRC, proposing to change technical specifications of the Diablo Canyon nuclear power plant to permit installation of the new spent fuel storage racks.

January 13, 1986 - Notice of "Consideration of Issuance of Amendment" for Diablo Canyon reracking and "Proposed No Significant Hazards Consideration Determination and Opportunity for Hearing" appears in Federal Register (Vol. 51, #8).

February 7, 1986 - San Luis Obispo Mothers For Peace requests that NRC hold a hearing and petitions to intervene in licensing process for Diablo Canyon reracking. Mothers For Peace believes that, if the amendment is granted, "the consequences would pose significant hazards to those . . . living near Diablo Canyon."

February 10, 1986 - The Sierra Club (Santa Lucia Chapter) files a petition with NRC to intervene in the licensing process for the Diablo Canyon reracking. The Sierra Club believes that the personal health and safety of its members and their families are endangered by the proposed reracking.

February 12, 1986 - Consumers Organized for Defense of Environmental Safety (CODES) requests that NRC hold a hearing and petitions to intervene in

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licensing process for Diablo Canyon reracking. CODES takes issue with the "contention that the license amendment request involves no significant hazards."

February 21, 1986 - Atomic Safety and Licensing Board (ASLB) is established by NRC to rule on petitions to intervene and requests for a hearing on the reracking proposal and to preside over the licensing proceedings, pursuant to NRC regulations.

February 27, 1986 - NRC staff files with ASLB its response to the Mothers For Peace's petition to intervene. NRC staff believes that the petition fails to meet the technical requirements in NRC regulations for intervention in licensing proceedings.

- PG&E files its response to the CODES petition to intervene in the licensing proceedings. PG&E states that the CODES petition fails to specify the nature of the petitioner's interest in the proceeding, as required by NRC regulations.

March 3, 1986 - NRC staff files with ASLB its response to CODES' and the Sierra Club's petitions to intervene in the licensing proceedings. NRC staff states that these petitions do not meet the technical criteria for intervention under NRC regulations.

April 22, 1986 - Mothers For Peace files with ASLB a list of 11 contentions (concerns) regarding Diablo Canyon reracking. The contentions primarily relate to alleged deficiencies in the analysis supporting PG&E's amendment application.

April 24, 1986 - The Sierra Club files its list of contentions with ASLB. The contentions relate to the alleged failure of PG&E's supporting documents to provide data and analysis necessary for independent verification that the proposed reracking is consistent with the protection of public health and safety and the environment.

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APPENDIX I

April 26, 1986 - CODES files its contentions with ASLB. Among other concerns, the contentions maintain that PG&E has not adequately consider certain technical and other factors relating to the safety and environmental consequences of reracking at Diablo Canyon.

May 13, 1986 - ASLB holds a prehearing conference to determine the contentions' admissibility in the proceedings.

May 21, 1986 - NRC staff completes "Environmental Assessment By the Office of Nuclear Reactor Regulation Relating to the Expansion of Spent Fuel Pools . . ." at Diablo Canyon. In this assessment, NRC staff concludes that "there are no significant radiological or nonradiological impacts associated with the proposed spent fuel pool expansions, and they will have no significant impact on the quality of the human environment."

May 30, 1986 - NRC approves the license amendment application to rerack the Diablo Canyon spent fuel storage pools, effective immediately, and releases its safety evaluation report on the reracking. The report also includes a final determination of "no significant hazards" consideration. (Under the Atomic Energy Act and implementing NRC regulations, NRC may issue an amendment and make it immediately effective before holding a hearing when it has determined that the amendment involves no significant hazards.)

May 31, 1986 - PG&E begins removing the original racks from Diablo Canyon storage pools as a first step in installing the new high-density racks.

June 16, 1986 - Mothers For Peace and the Sierra Club request a stay of the Diablo Canyon reracking from ASLB and NRC Commissioners "in order to prevent irreparable harm and to preserve the status quo until administrative and judicial review of all issues . . . ."

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June 18, 1986

- PG&E files documents with ASLB requesting that the proposed stay be denied. PG&E's states that the interveners' application for stay (1) was not filed in a timely manner, (2) is supported by unqualified testimony, (3) is based on the invalid premise that interveners are being denied a hearing, and (4) does not meet NRC's criteria for intervention in the proceedings.

- ASLB and Atomic Safety and Licensing Appeals Board dismiss the petitioners' application for a stay of the Diablo Canyon reracking. According to the judges, NRC's No Significant Hazards regulations contain no provision for the stay action requested; the stay request should be directed to the Commission itself.

- Mothers For Peace and the Sierra Club file an emergency motion with the U.S. Court of Appeals-Ninth Circuit for an order staying NRC's approval of the reracking license amendment because it violates their rights under various laws and NRC's regulations.

June 19, 1986

- NRC staff opposes the court's expedited consideration of petitioners' emergency motion for stay because they failed to exhaust administrative remedies through NRC.

June 20, 1986

- PG&E enters case as intervenor requesting the court to deny petitioners' motions because they are not timely and are based on false and misleading assertions.

- Diablo Canyon Unit 1 reracking activity is over 50 percent complete; 7 of 16 new racks have been installed at Diablo Canyon; the remaining 9 racks will be installed by July 9.

June 25, 1986

- NRC staff requests the court to deny the motion for a stay because petitioners have yet to exhaust their administrative remedies and can show no "imminent irreparable injury to

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their interests" pending an NRC decision on their stay request.

- NRC staff files with the Commission its response to the Sierra Club's and Mothers For Peace's request for a stay. The staff states that interveners have failed to meet NRC's requirements for having their stay approved.

June 26, 1986 - PG&E files response and memorandum in support of opposition to emergency motion for stay pending review. PG&E stated that petitioners failed to establish that the reracking would cause irreparable injury to the petitioners, that the stay would not harm others, or that a stay would be in the best interests of the public.

June 27, 1986 - ASLB rules on admissibility of contentions: Mothers For Peace, the Sierra Club, and CODES are admitted as parties to the proceedings because each petitioner submitted at least one admissible contention. ASLB admitted and denied some contentions for each party.

July 2, 1986 - The appeals court issues order both denying and granted in part the petitioners' emergency motion for stay: PG&E can continue reracking at Diablo Canyon Unit 1, but pending further orders by the court, cannot place any spent fuel in the pool. PG&E cannot begin reracking Unit 2, pending further order of the court. Consideration of the petition for review was ordered expedited by the court.

July 16, 1986 - Mothers For Peace and the Sierra Club file opening brief with appeals court. Brief questions whether (1) NRC violated the public hearing requirements of Section 189(a) of the Atomic Energy Act by issuing the Diablo Canyon reracking amendments before holding public hearings, (2) the amendments are inconsistent with the Nuclear Waste Policy Act and NRC's implementing regulations, (3) NRC's authorization of the reracking violates National Environmental Policy Act

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requirements, and (4) NRC's determination of "no significant hazards consideration" is clearly erroneous and in violation of NRC regulations.

July 22, 1986 - NRC Commissioners stay, pending completion of the ongoing license amendment hearing, the portion of the Diablo Canyon reracking amendments that authorizes PG&E to store in excess of 270 fuel assemblies (the original licensed volume) in either pool at Diablo Canyon. All other aspects of petitioners' motion to stay are denied.

July 30, 1986 - PG&E and NRC staff file briefs with the court responding to questions raised by Mothers For Peace and the Sierra Club in their brief.

August 4, 1986 - Mothers For Peace and the Sierra Club file a reply brief and an amended petition for review with the court. In addition to previous assertions that NRC's actions relating to the reracking amendment were unlawful, petitioners state that NRC's order permitting spent fuel storage at Diablo Canyon violates the court's stay order prohibiting storage at Diablo Canyon pending further order of the court.

August 13, 1986 - Appeals court hears arguments on the case.

September 5, 1986 - PG&E begins reinstalling original storage racks that were removed to permit reracking.

September 11, 1986 - Appeals court issues its opinion: NRC violated its regulations in finding that no significant hazard is involved in the spent fuel storage pool reracking at Diablo Canyon. The court states that

> "NRC failed to comply with its own regulations in denying petitioners a hearing prior to making the amendments effective. Accordingly, the existing stay of those amendments is continued. PG&E shall not deposit any spent

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fuel rods in the pool for Unit 1 and shall not rerack the pool for Unit 2 until hearings have been held in compliance with the requirements of the Atomic Energy Act . . . PG&E may, of course, elect to return the racks to the original configuration in accordance with its existing operating licenses and may then use the spent fuel pools prior to completion of the hearings."

- NRC staff and PG&E meet to discuss reinstallation of original storage racks. PG&E is in the process of reinstalling the original racks and intends to place spent fuel in pool in about 10 days.

September 15, 1986 - Reinstallation of original storage racks at Diablo Canyon is completed.

September 16, 1986 - The Sierra Club and Mothers For Peace file an emergency motion for enforcement of order and stay pending consideration with the court, stating that PG&E is not reinstalling the racks "to the original configuration" approved in the operating license. (The racks are being welded to the storage pool liner rather than bolted to the floor as originally approved.) The petitioners want the court to stop PG&E from loading spent fuel in the pool.

- Mothers For Peace and the Sierra Club apply to NRC for a stay of spent fuel loading at Diablo Canyon and an order directing hearings on the use of welded spent fuel racks instead of bolted racks, as originally installed in the pools.

September 19, 1986 - NRC staff files its initial response with the court on the petitioners' emergency motion for enforcement of the court's order prohibiting the placement of spent fuel in the reinstalled racks at Diablo Canyon Unit 1 and a stay pending consideration by the court. NRC informed the court of the Commission's actions

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underway to review the petitioners' pending administrative request for a stay of PG&E's proposed reinstallation and use of the original spent fuel storage racks.

- NRC staff conducts an "in-depth" audit of PG&E reracking design calculation packages, including criteria, assumptions, analyses, and drawings.

September 26, 1986 - Mothers For Peace and the Sierra Club agree to withdraw their emergency motion for enforcement of the court's order and a stay pending consideration under certain specified conditions. Upon notification by NRC staff that the original spent fuel storage racks, as modified, present no unreviewed safety questions, petitioners will withdraw their emergency motion.

October 3, 1986 - NRC staff evaluates PG&E's changes to installed original spent fuel racks. The staff concludes that the changes made to the original racks and the reinstallation of these racks meet the original criteria set out in the Diablo Canyon license and are capable of performing their function safely. In particular, the staff concludes that reinstallation by welding the racks directly to the embed plates, instead of using bolts welded to these plates, does not involve an unreviewed safety question as defined in NRC regulations.

December 10, 1986 - CODES withdraws from ASLB licensing proceedings. CODES states that the process is so seriously flawed that "the whole thing has degenerated into a charade of legalistic maneuvering driven by strictly political rather than safety concerns."

December 15, 1986 - Mothers For Peace and the Sierra Club file a motion for Summary Disposition with the Atomic Safety and Licensing Appeals Board. The Summary Disposition motion alleges that the NRC staff's failure to prepare an

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environmental impact statement (EIS) and to adhere to the provisions of NRC's Standard Review Plan compel the denial of the reracking license amendment.

December 19, 1986 - The Atomic Safety and Licensing Appeals Board refers the petitioners' motion for summary disposition to ASLB for appropriate action.

January 13, 1987 - Mothers For Peace withdraws as interveners in ASLB licensing proceedings.

January 14, 1987 - PG&E files with ASLB its opposition to intervener's motion for summary disposition. PG&E states that the petitioners have failed to show any basis for ASLB to grant their request for summary disposition.

January 15, 1987 - NRC staff files its opposition to the intervener's motion for summary disposition. The staff states that the motion is "devoid of any factual support which would warrant granting of summary disposition."

January 28, 1987 - ASLB denies the motion for summary disposition. ASLB states that, in order to resolve the motion, it would have to rule on factual matters that are disputed by the parties to the proceedings and, therefore, the motion is denied. In addition, the contentions of the Mothers For Peace and CODES--which withdrew as interveners--are dismissed.

May 1987 - Revised technical analysis reports are issued by NRC confirming the safety of the Diablo Canyon reracking: Evaluation of Spent Fuel Racks Structural Analysis, Franklin Research Center, revised May 28, 1987; and Evaluation of Structural Adequacy of the Diablo Canyon High-Density Spent Fuel Racks in Accommodating Multiple Rack Impacts During the Postulated Hosgri Earthquake, Brookhaven National Laboratory, May 1987.

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May 29, 1987 - NRC staff notifies the Commissioners of new geologic information relating to Diablo Canyon. A "previously unidentified strand" of the Hosgri Fault Zone has been discovered which has a surface trace about 4 kilometers from the Diablo Canyon site. The staff does not at this time consider this new information to be a safety concern.

June 4, 1987 - PG&E and NRC staff file testimony with the ASLB addressing each of the Sierra Club's contentions. The contentions relate primarily to the structural integrity of the high-density racks during a postulated earthquake involving the Hosgri Fault.

- The Sierra Club files testimony, proposed findings of fact, and conclusions of law with ASLB.

June 15-17, 1987 - ASLB hearings are held.

June 29, 1987 - The Sierra Club files a motion requesting the ASLB to admit a new contention to the hearing regarding the possibility of zircaloy cladding fires in spent fuel storage pools. The Sierra Club also requests ASLB to direct NRC to prepare an environmental impact statement.

- PG&E and the Sierra Club file revised findings of fact and conclusions of law with ASLB.

July 8, 1987 - NRC staff files proposed findings of fact and conclusions of law with ASLB.

July 10, 1987 - NRC staff files its opposition to the Sierra Club motion to introduce a new contention and to prepare an EIS. The staff states that the motion does not meet NRC standards for admission of a late-filed contention and the proposed contention fails to present a litigable issue.

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- PG&E files its opposition to the Sierra Club motion on a new contention and an EIS. PG&E states that the proposed contention does not raise a significant safety issue and does not meet the late-filed contention standards.

July 31, 1987 - ASLB orders the parties to file briefs on the applicability to the Diablo Canyon proceedings of a previous ASLB ruling regarding a Vermont Yankee Nuclear Power Plant amendment. On July 21, 1987, ASLB, in a decision on a Vermont Yankee application, discussed a proposed contention relating to severe accidents in spent fuel pools. The ASLB determined that the National Environmental Policy Act does not require NRC to consider severe, beyond design-basis accidents because they are, by definition, remote and speculative events. ASLB admitted the contention to the proceedings, but the Atomic Safety and Licensing Appeals Board rejected its admission. This decision effectively supported NRC staff's position that the contention was premised on a comparative assessment of risks involving spent fuel pools for a "remote chain of unlikely events."

August 13, 1987 - NRC staff files its response on the applicability of the Vermont Yankee decision to the Diablo Canyon proceedings. NRC staff states that the proposed the Sierra Club contention is similar to the one rejected by the Atomic Safety and Licensing Appeals Board in the Vermont Yankee proceeding. The staff believes that this decision directly supports their position in the Diablo Canyon proceeding that the Sierra Club should not be permitted to use a remote and speculative beyond design-basis accident scenario to assert that an EIS is required to examine the environmental risks of such an accident where an EIS is not otherwise required.

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August 14, 1987 - PG&E files its response on the applicability of the Vermont Yankee decision to the Diablo Canyon proceedings. PG&E believes that the Vermont Yankee decision is directly applicable to the Diablo Canyon proceedings. Neither NRC's National Environmental Policy Act statement nor the act itself provide for admission of a contention to consider the environmental consequences of a beyond design-basis accident; nor do they require the preparation of an EIS.

September 2, 1987 - ASLB rules that the Sierra Club contention relating to beyond design-basis accidents cannot be admitted to the proceedings.

September 11, 1987 - ASLB issues "Initial Decision": The Sierra Club's contentions are unfounded, and NRC staff may issue the license amendment for reracking as applied for, effective immediately.

September 16, 1987 - The Sierra Club files with the Atomic Safety and Licensing Appeals Board a notice of appeal of ASLB's September 2, 1987, order denying admission of the contention relating to beyond design-basis accidents.

September 18, 1987 - The Atomic Safety and Licensing Appeal Board dismisses the Sierra Club's appeal of ASLB September 2 decision relating to admission of its contention on beyond design-basis accidents. The Appeal Board, however, indicates that it might reconsider the appeal at a later time if ASLB's September 11, 1987 initial decision is also appealed.

September 24, 1987 - The Sierra Club requests that NRC stay the ASLB's September 2, 1987, ruling denying admission of the late contention and preparation of an environmental impact statement and its September 11, 1987, initial decision approving issuance of the reracking amendments.

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September 25, 1987 - The Atomic Safety and Licensing Appeals Board grants a temporary stay of ASLB order authorizing issuance of the license amendments, pending review, stating that PG&E is to "refrain from taking any action sanctioned by the amendments pending further order" of the appeals board.

October 8, 1987 - The Atomic Safety and Licensing Appeals Board denies the Sierra Club's request for stay of the reracking. It also dissolves its temporary stay imposed on September 25.

October 15, 1987 - NRC issues a supplement to the environmental assessment for the Diablo Canyon reracking and makes a second finding of "no significant impact" under National Environmental Policy Act requirements. These documents relate to the changed circumstances under which the reracking would now take place. Initially, the license amendments were approved for reracking in a dry, uncontaminated, unused storage pool. However, while the licensing proceedings continued, PG&E needs to refuel the Diablo Canyon Unit 1 reactor. PG&E, therefore, either has to shutdown its reactor because, with no place to store the spent fuel, it cannot refuel, or it has to reinstall the original racks, fill the pool, and place the radioactive spent fuel in storage. Because PG&E chooses to exercise the latter option, spent fuel is now in the pools, thus the proposed reracking will involve a different, more complicated procedure than that originally approved by NRC. The reracking will now have to take place under water and will require the handling and removal of highly radioactive spent fuel using special equipment. Because of these changed circumstances, NRC reviews its original environmental assessment and issues a supplement addressing the "wet" reracking of the Diablo Canyon storage pools. The revised assessment concludes that this procedure would involve no significant impact on the environment.

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October 20, 1987 - The Sierra Club files a request for stay of the reracking order with NRC Commissioners.

- NRC staff reissues the Diablo Canyon reracking amendments.

October 26, 1987 - NRC Commissioners deny the Sierra Club's application for stay of reracking order.

- The Sierra Club files a brief with the Atomic Safety and Licensing Appeal Board requesting review of ASLB's September 2, 1987, and September 11, 1987, rulings.

October 29, 1987 - The Sierra Club files with the Ninth Circuit Court of Appeals a motion to review ASLB's and NRC's decisions allowing PG&E to begin reracking and an emergency motion to stay issuance of the reracking amendments pending the court's review of the case.

October 30, 1987 - All parties to the proceedings are notified that the Commissioners declined to review the September 18, 1987, decision of the Atomic Safety and Licensing Appeal Board. Therefore, the appeals board's decision to dismiss the Sierra Club's request for an appeal of ASLB's September 2 rejection of the late contention and preparation of an environmental impact statement became final agency action on October 28, 1987.

November 4, 1987 - NRC staff files its response opposing the Sierra Club's emergency motion for stay with the Ninth Circuit Court of Appeals.

November 6, 1987 - The Ninth Circuit Court temporarily stays issuance of the reracking amendments through November 12, 1987, pending a decision by the court on the Sierra Club's emergency motion.

November 13, 1987 - The Ninth Circuit Court denies the Sierra Club's emergency motion for stay pending review. The court orders that the appeal will proceed on an expedited basis. Briefs by all parties are to be filed before December 23,

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1987. Oral arguments in the case will be heard in January 1988.

November 23, 1987 - The Sierra Club, NRC staff and PG&E file an emergency motion with the Ninth Circuit Court of Appeals to stay further proceedings in the court pending completion of NRC's administrative proceedings before the appeals board.

November 25, 1987 - The Ninth Circuit Court grants the joint emergency motion staying the court proceedings on the Diablo Canyon reracking until NRC's administrative proceedings are completed.

- The NRC Commissioners direct the appeals board to expedite the Sierra Club's appeal of ASLB's September 1987 rulings and to render a decision by the end of January 1988.

November 1987 - PG&E begins reracking Diablo Canyon's spent fuel storage pools.

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ORIGINAL CONTENTIONS SUBMITTED BY INTERVENERS ON THE DIABLO CANYON RERACKING

In April 1986, three groups from the vicinity of the Diablo Canyon Nuclear Power Plant--(1) the Sierra Club (Santa Lucia, California, Chapter), (2) the San Luis Obispo Mothers For Peace, and (3) Consumers Organized for Defense of Environmental Safety (CODES)--submitted several contentions to the NRC's Atomic Safety and Licensing Board opposing the proposed spent fuel pool reracking. In June 1986, the Atomic Safety and Licensing Board determined that a number of these contentions were inadmissible to the licensing hearing because they did not meet the criteria established under NRC regulations. Prior to the ASLB hearings held in June 1987, the San Luis Obispo Mothers For Peace and Consumers Organized for Defense of Environmental Safety withdrew from the proceedings. Consequently, the contentions that these two groups had introduced were dismissed from consideration in the hearing process by the ASLB. Therefore, only the Sierra Club's contentions were addressed in the June 1987 hearings.

The following lists the contentions originally submitted by each intervener in April 1986. Each contention is stated as submitted by the intervener. Although many of these contentions were determined to be without merit and, therefore, not addressed in the licensing proceedings, they reflect concerns that were raised over the proposed Diablo Canyon reracking.

Consumers Organized for Defense of Environmental Safety:[1]

1. Adequate consideration has not been given to alternatives to reracking the spent fuel ponds at Diablo Canyon. Under the Nuclear Waste Policy Act of 1982, Public Law 97-425, January 7, 1983, the Federal Government has the responsibility to provide interim storage of spent nuclear fuel for civilian nuclear power reactors that cannot reasonably provide adequate storage capacity at the sites of such reactors when needed to assure the continued, orderly operation of such reactors

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[1]All contentions submitted by CODES, except for number 14, were rejected as inadmissible by the ASLB in June 1986. Because CODES withdrew from the proceedings in December 1986, the one CODES contention which had been admitted to the proceedings was dismissed by the ASLB at that time.

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(emphasis added). PG&E and its wholly owned subsidiary, Pacific Energy Trust (P.E.T.) have a contract with the Department of Energy for storage of high-level radioactive waste at this time.

2. It is unreasonable and premature to consider the spent fuel pool's seismic design, as modified by the proposal, adequate when the long term seismic program (a licensing condition) is to be completed in 1988, 2 years from now.

3. By ordering the long term seismic program study, the Commission has indicated that there are unanswered questions and possible seismic hazards that must be investigated.

4. No site in California is being considered for a permanent waste repository for high-level radioactive waste partly because of the seismic conditions. It is unreasonable to extend the storage capacity of spent fuel pools for the same reasons.

5. The additional spent fuel rods in the reracked spent fuel pools would increase radioactive contamination in an accident involving the fuel pools.

6. Human error and its possible consequences in the operation of the reracked spent fuel pools have not been adequately considered.

7. Inadequate and/or faulty procedures combined with operator and technician errors has not been adequately considered.

8. The adequacy of procedures, technical specifications, administrative controls and their implementation and training has not been considered adequately.

9. The possibility of faulty reasoning and inappropriate deviation from procedures during an emergency or accident has not been adequately considered.

10. The consequences of poor communications between site personnel and NRC personnel contributing to the severity of an emergency or accident involving the reracked spent fuel pools has not been given adequate consideration.

11. Adequate consideration of the loss of spent fuel cooling has not been considered for the reracked fuel pools.

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12. The lack of resolution and action on critical issues being investigated by the Office of Investigation (OI) and Office of Inspection and Auditor (OIA), issues which are directly related to the Significant Hazard Issue of the fuel pools reracking application have not been given any consideration.

13. The views of the population surrounding Diablo Canyon Nuclear Power Plant concerning the storage of high level radioactive waste have not been considered. This is inconsistent with and repugnant to the Nuclear Waste Policy Act of 1982.

14. The uncertainties as to how long high level radioactive waste would be stored at the proposed Diablo Canyon facility, neutron embrittlement and other metallurgical deterioration and environmental stresses to the structural integrity of the spent fuel ponds have not been adequately analyzed and determined.

15. The Applicant has not demonstrated the existence nor implementation of a detailed quality assurance program which would effectively detect and prevent defective work by contractors and vendors involved with the proposed spent fuel pool reracking.

Mothers For Peace:[2]

1. The Applicant has not adequately considered alternatives to the proposed reracking of the spent fuel pools. In particular, because of the increased danger posed by the close proximity of the Hosgri fault, alternatives should be considered. Some alternatives include:

a. The contracting out or trans-shipment of spent fuel for storage at a government owned spent fuel facility;

b. Derating the facility or reducing the plant output and thereby reducing the generation of spent fuel;

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[2]Mothers For Peace Contentions 4 through 11 were rejected by the ASLB in June 1986. Therefore, only Contentions 1 through 3 were admitted for consideration in the licensing proceedings. Because the Mothers for Peace withdrew from the licensing proceedings in January 1987, however, those contentions determined to be admissible were dismissed by the ASLB at that time.

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c. Closing or shutting down the facilities.

2. The Applicant failed to evaluate the overall cost (in terms of both health effects and potential associated medical costs) associated with the additional exposures of the plant personnel to increased radioactivity levels due to the increased spent fuel storage.

3. No analysis has been made of the overall costs (in terms of both health effects and potential associated medical costs) associated with the additional exposures of persons off the Diablo Canyon site to increased radioactivity levels due to the increased spent fuel storage.

4. The expansion of the spent fuel storage capacity will have a significant effect on the quality of the human environment and therefore requires the preparation of an Environmental Impact Statement.

5. Applicant's proposal does not ensure that spent fuel pool conditions will be maintained within regulatory or design limits in the event of a Class 9 accident or other extreme accident in the main reactor. The Applicant has not shown that in such cases the electrical systems, cooling systems and plant personnel will function sufficiently well to ensure continued safe operation of the spent fuel pools.

6. The Application for reracking is premature in that no need for the immediate expansion has been shown. Applicant will have no need for the increased storage capacity for the next 4 years.

7. The NRC has ordered PG&E to conduct a long-term seismic program and submit the results of the study to the Commission by 1988. In view of the fact that the study is still in the early planning stages, any seismic analyses done on the spent fuel pools as well as on the racks are inadequate. It also makes consideration of reracking premature, and woefully inadequate.

8. The Applicant has not adequately considered or analyzed the long-term health, safety and environmental effects of the proposed reracking with respect to such periods of time over which the spent fuel pool is likely to be used beyond the expiration of Applicant's operating license.

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9. The Applicant has not shown that people could safely be evacuated in the event of a simultaneous earthquake and accident at Diablo Canyon's spent fuel pools. Current evacuation times are inadequate to preserve the health and safety given the increased quantity of radiation that would occur with a spent fuel pool storage expansion.

10. The Applicant has not analyzed nor considered the consequences of an accidental impact from an aborted, misfired, misguided or exploded missile launched from the Vandenberg missile range. Vandenberg is a major launch facility for the U.S. Air Force, and soon will become a prime launching facility for NASA. Accidental explosions have been occurring with increased frequency.

11. In light of increased terrorist activities, the Applicant has not adequately analyzed nor considered the consequences of sabotage of the spent fuel facilities. The possibility of increased harm due to sabotage of the spent fuel pools will necessitate increased security measures over and above current forces.

The Sierra Club, Santa Lucia Chapter:[3]

I(A) It is the contention of the Sierra Club, Santa Lucia Chapter (Sierra Club), that the report submitted to the Nuclear Regulatory Commission (NRC) entitled Reracking of Spent Fuel Pools Diablo Canyon Units 1 and 2 and other communications between Pacific Gas and Electric Company (PG&E) and the NRC which are available to the public on the same subject (the Reports) fail to contain certain relevant data necessary for independent verification of the claims made in the Reports regarding consistency of the proposed reracking with the protection of the public health and safety, and the environment.

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[3]Sierra Club Contentions I(B)1, 3, 4, 5, 6, and 10; III; and IV were rejected by the ASLB in June 1986. Contentions I(A)1, 2, 5, and 6 were settled between the parties before consideration by the ASLB. Therefore, Sierra Club Contentions I(A)3 and 4; I(B)2, 7, 8, and 9; and II were admitted to the proceedings. Because all other interveners withdrew prior to the hearings, only those contentions submitted by the Sierra Club and deemed admissible by the ASLB were ultimately addressed at the ASLB hearings in June 1987.

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APPENDIX II

In particular, the Reports fail to contain data regarding:

1) the mass of a spent fuel assembly and masses of the loaded spent fuel racks (racks);

2) the spring constants used for the nonlinear springs (gap elements) to model the behavior of the racks (see e.g., p.6-10ff of the Report);

3) the expected velocity and displacement of the spent fuel pools (pools) as a function of time in three dimensions during the postulated Hosgri earthquake (PHE);

4) the expected maximum velocity and displacement of the racks obtained from the computer modelling of rack behavior during the PHE;

5) the kinetic coefficients of friction appropriate for estimating the frictional forces between the pool floor liner and the racks when sliding of the racks occurs; and

6) the dimensions and configurations of rack "H".

Additional data may be needed to verify claims made in the Reports.

I(B) It is the contention of the Sierra Club that the Reports fail to include consideration of certain relevant conditions, phenomena and alternatives necessary for independent verification of claims made in the Reports regarding consistency of the proposed reracking with public health and safety, and the environment, and with federal law.

In particular, the Reports fail to consider:

1) collisions between racks and pool walls and collisions of various types involving groups of racks sliding in contact with each other during the PHE;

2) the resonant behavior of the spent fuel assemblies in the racks in response to the PHE and the consequences of such behavior;

3) the effects of the possible loss of pool cooling capacity on the spent fuel assemblies;

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4) the statistical nature of potential failure of the large number of spent fuel storage system components during the PHE;

5) the consequences of possible failure of welds, materials, or structural elements of spent fuel storage system components during the PHE;

6) the comparison of the proposed spent fuel storage system with other systems at other reactor sites having less severe seismic design criteria;

7) alternative on-site storage facilities including:

(i) construction of new or additional storage facilities and/or;

(ii) acquisition of modular or mobile spent nuclear fuel storage equipment, including spent nuclear fuel storage casks;

8) the use of anchors, braces, or other structural members to prevent rack motion and subsequent damage during the PHE;

9) the use of "boraflex" neutron absorbing material for all spent fuel racks; and

10) the structural integrity of the pool following collisions of the racks with the pool walls as described in (I)(B)(1) above.

Additional information may be needed to verify claims made in the reports.

II) It is the contention of the Sierra Club that the proposed reracking is inconsistent with the protection of the public health and safety, and the environment, for reasons which include the following:

A) during the PHE, collisions between the racks and the pool walls are expected to occur resulting in:

1) impact forces on the racks significantly larger than those estimated in the reports;

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2) impact forces on the racks significantly larger than those expected to damage the racks;

3) significant permanent deformation and other damage to the racks;[4]

4) reduction of the spacings between fuel assemblies;

5) increase in the nuclear criticality coefficient k(eff) above 0.95;

6) release of large quantities of heat and radiation;

7) radioactive contamination of the nuclear power plant and its employees above the levels permitted by federal regulations;

8) radioactive contamination of the environment in the vicinity of the nuclear power plant above the levels permitted by federal regulations; and

9) radioactive contamination of humans and other living things in the vicinity of the nuclear power plant above the levels permitted by federal regulations.

B) during the PHE, collisions between groups of racks with each other and/or with the pool walls are expected to occur with results similar to those described in II(A) above.

III) It is the contention of the Sierra Club that:

A) no attempt has been made to ascertain the views of the population surrounding the reactors at Diablo Canyon concerning the proposed spent fuel storage facilities and that the proposed reracking is probably inconsistent with these views; and that

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[4]Sierra Club Contention II(A)3 was admitted to the proceedings but was rewritten by the ASLB. As rewritten, the contention stated: "significant permanent deformation and other damage to the racks and pool walls;"

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B) as discussed in Sec. II above, the proposed reracking is inconsistent with the protection of public health and safety, and the environment; and that

C) existing storage facilities at Diablo Canyon will be effectively used to the maximum extent practical within the next few years; and that

D) adequate storage capacity at Diablo Canyon cannot reasonably be provided to assure the continued, orderly operation of the reactors.

IV) In light of the foregoing, it is the contention of the Sierra Club that:

A) the Federal Government has the responsibility to provide sufficient capacity for interim storage of the spent fuel from Diablo Canyon; and that

B) the Federal Government is required by law to offer to enter into contracts with PG&E for purposes of providing storage capacity for spent fuel produced at Diablo Canyon.

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APPENDIX III

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